

**What is Claimed is:**

- 1           1.     An apparatus for monitoring surface variations on a component, said  
2 apparatus comprising:
- 3               (a)     a non-vibrating capacitance probe;
- 4               (b)     means for positioning said non-vibrating capacitance probe in  
5                       proximity to the component; and
- 6               (c)     means for measuring the contact potential difference between the  
7                       component and said non-vibrating capacitance probe.
- 1           2.     An apparatus according to Claim 1, further comprising a means for  
2 measuring the relative motion between the component and said non-vibrating capacitance  
3 probe.
- 1           3.     An apparatus according to Claim 2, further comprising means for  
2 regulating the relative motion between the component and said non-vibrating capacitance  
3 probe.
- 1           4.     An apparatus according to Claim 1, further comprising means for  
2 measuring the spatial distance between the component and said non-vibrating capacitance  
3 probe.
- 1           5.     An apparatus according to Claim 1, further comprising a means for  
2 supporting the component.
- 1           6.     An apparatus according to Claim 5, wherein said means for positioning  
2 said non-vibrating capacitance probe in proximity to the component is fixed relative to  
3 said means for supporting the component.
- 1           7.     An apparatus according to Claim 1, wherein said surface variation is  
2 surface wear.

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1           8.     A process for monitoring surface variations on a component, comprising  
2 the following steps:

3               (a)     imparting relative motion between the component and a non-  
4 vibrating capacitance probe;

5               (b)     monitoring the relative motion between the component and  
6 the non-vibrating capacitance probe; and

7               (c)     monitoring the contact potential difference between the component  
8 and the non-vibrating capacitance probe.

1           9.     A process according to Claim 8, further comprising the step of monitoring  
2 the distance between the said test surface and the non-vibrating capacitance probe.

1           10.    A process according to Claim 9, wherein the surface variation is surface  
2 wear.

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